H. Thetidis, and *H. Derbianus,* but is easily distinguished from them by the bright rusty red brown of the basal third of the ears, the space about their base, the spot over the eye, and the back of the hind legs, as well as by the greyish brown colour of the neck and fore limbs. The proportional measurements are also different.

XLIII.—*Notes on the Pronghorn Buck* (Antilocapra), *and its Position in the System.* By Dr. JOHN EDWARD GRAY, F.R.S., V.P.Z.S., &c.

IN the 'Proceedings of the Zoological Society' for 1855, when describing a pair of horns in the collection of the late Earl of Derby, I mentioned that the horn of the *Prongbuck* was "formed of agglutinated hair, that it was lined internally with a close velvet-like coat of short hairs, which were directed towards the top of the cavity, and that the edge of the base of the horn was furnished with a ring of hair." I observed that the "peculiarity in the internal structure of the horns of the genus showed, like the branched external form, a similarity to the horns of the deer, the hairy horns being the analogue of the deciduous velvet of the deer and the permanent hairy coat [on the horns] of the giraffe."

1. The peculiarity in the structure of the horn which isolates the Cabrit or Prongbuck from the other hollow-horned Ruminants seems to have been overlooked by the American naturalists; and the spoils of the animal are very rare in European museums.

The hunters of America stated that the Prongbuck shed its horns; but the systematic zoologists, who depended on the examination of the preserved skin and head for their facts, did not believe the assertion; and, indeed, some went so far as to deny the fact.

When the hunters at Fort Union said that the prong-horned Antelope dropped its horns, Messrs. Audubon and Bachman (Quad. North America, p. 198) considered it a sufficient reply to show them that "the bony part of the horn and the hard spongy membrane beneath were well attached to the skull and perfectly immoveable." They evidently had the deciduous horn of the deer in their mind, and could not conceive any other manner of shedding the horns, not foreseeing that the horny sheath might drop off the cores, which, if they had examined the structure of the horn and observed its internal fur, they might have anticipated as probable.

Cassin, in the 'United States Exploring Expedition' (p. 63), under *Antilocapra americana,* remarks, "Dr. Pickering, in his note under 24th August 1841, observes, 'Dr. Marsh assures me that the horns of this animal are shed annually, like those of the deer.'"

Dr. Colbert A. Canfield, who resides in California, sent an account of the habits of the Prongbuck, in which he states as a fact that "the horns drop off annually," to Dr. Spencer Baird, of the Smithsonian Institution; but his paper (which is dated Sept. 10, 1858) was not published until after Mr. Bartlett had recorded his observation of the same fact, observed on the animal in the Zoological Society's Gardens.

Dr. Colbert Canfield's paper is printed in the 'Proceedings of the Zoological Society,' 1866, p. 105, and contains many very interesting particulars on the habits and manners of the animal.

Dr. Canfield truly observes that the horns of sheep and goats always have rings showing the growth of the horns, and that such rings are not to be observed on the horns of the Prongbuck.

When Dr. Canfield says that "the horns drop off annually," and observes to Dr. Spencer Baird, "To convince you of this singular fact is my principal object in making you this communication," he only intended to say that the horny sheath of the horns fell. The American hunters and Dr. Marsh must have intended the same, though Dr. Bachman and M. Audubon were deceived by the vagueness of the hunters' words; and even Dr. Marsh, when he added "like the deer," could only have intended to say that the case of the horns falls annually, and not that the entire horn or antler falls, as is the case with the deer.

Mr. Bartlett, in the 'Proceedings of the Zoological Society' for 1865, p. 718, gave a very interesting and detailed account of the manner in which the horny case of the horn separates from the core, and how the new horny case is formed between the inner surface of the old case and the core.

Mr. Bartlett in this paper endeavours "to prove that the Prongbuck's affinities are closer to the genus *Cervus*," to which he thinks "it is more nearly allied than to the Antelopes." Indeed he thinks he is "able to show that the horns of the Prongbuck are a modification of the horns of *Cervus*."

In this view I think that Mr. Bartlett is entirely mistaken, and that this theory obscures the otherwise very interesting details which he gives of the peculiarities of this animal.

2. In the hollow-horned Ruminants the bony processes of the frontal bone, which form the true horns of this group of animals, are permanent, and are covered, in the oxen, sheep, goat, and antelopes, with a horny case, which is increased in size as the core enlarges by the addition of new laminæ of horny matter to

the inner surface, especially near the edge of the sheath. The giraffes, on the other hand, have the same permanent cores, which are covered with a hairy skin, like the rest of the body, which covers the horn during the entire life of the animal.

The horns of the deer, with which Mr. Bartlett compares those of the Prongbuck, on the other hand, are only developed at a certain season of each year; and while they are being expanded, they are covered with a soft velvety skin containing a number of large blood-vessels: these vessels become obliterated and the skin falls off when the horns are fully developed; and at the end of the season the horns themselves fall off, leaving only a burr on the frontal bones.

Now in the Prongbuck the core of the horn is permanent, vascular, and exactly like the core of the horns of the true hollow-horned Ruminants, very unlike the deciduous horn of the deer, and showing the true affinity of the genus to the antelope and goat, with which it has been usually associated. It indeed only differs from the normal structure of that of the animals of this group in the core being covered with a case formed of agglutinated hair, which falls off annually, and is replaced by another case formed between its cavity and the outer surface of the core. The surface of the core is covered with a vascular skin, which secretes this deciduous coat of agglutinated hair, like the vascular coat that secretes and gradually enlarges and thickens the horny permanent case of the horns of oxen, sheep, and goats.

It is to be observed that the horny case of the core of all these animals is formed of agglutinated hair; but the hairs of the horns of the oxen, sheep, &c. are more closely agglutinated and regularly placed, forming a denser substance than the porous horny case of the Prongbuck, in which the several hairs of which it is composed are to be seen by the naked eye, and some of them projecting beyond its surface.

I think that the above observation proves that the Prongbuck is more nearly allied to the typical hollow-horned Ruminants, with which it has been placed, than with the deciduous-horned deer, with which Mr. Bartlett proposes to unite it. Indeed it only differs from them in the outer case of the horn being porous and formed of loosely agglutinated or, rather, felted hairs, and in the case being deciduous and renewed annually, instead of being permanent and strengthened by internal laminæ so as to form a hard horn.

There is no doubt that this peculiarity of the structure and derivation of the sheath, or rather case, of the horns affords a very good character to separate the Prongbuck from the other hollow-horned Ruminants; and I suggest that it should be formed into a family, which should be called **Antilocapridæ**, of equal rank with Bovidæ and Giraffidæ, between which families it ought to be placed.

The Ruminants may be divided, according to their horns, thus:—

I. The males and generally the females furnished with a bony process on each frontal bone, which is permanent during the lives of the animals.

In the Bovidæ this bony process is covered with a permanent horny coat.

The horn (*coleocera*) has the same appearance, form, structure, and is enlarged in the same manner as the hoofs over the toes.

In the Antilocapridæ the bony process is covered with a porous horny coat, which falls off and is renewed annually.

The horn or pseudo-horn (*komecera*) of the Cabrit is *sui generis*. It seems to be formed of the matted or felted hair of the skin that covers the core. It loosens and falls off in the mass when the new coat of matted hair is formed beneath it. The horns may be compared to the annual coat of matted hair which is shed by the American bison and some other ruminants; but in that animal the hair only forms a kind of blanket, and falls off in flakes of different sizes.

In the Giraffidæ the bony process is covered with a skin like the rest of the body, and equally permanent, and the horn (*dermocera*) covered with hair that is shed and renewed like the hair of the body.

II. The males and sometimes the females are periodically furnished with horns, which, during development or expansion, are covered with a vascular skin coated with down, the skin falling off when the horns are perfect and solidified, and the horns themselves falling off at the end of the season. In some few the horns spring from the end of a permanent elongated bony process, as in the Muntjac. (Cervidæ.)

The antlers (*epochocera*) of the deer differ from the horns of the other ruminants in being periodical developments of bone, which is at first covered with a hairy skin, that dries up and falls off.

III. Neither sex provided with any horn-like process of the frontal bone, as the musk (Moschidæ), camels, llama (Camelidæ).